The Actuarial Profession
making financial sense of the future

Life conference and exhibition 2010

James Isden and James Latto

A basic guide to Solvency II

8 November 2010

Agenda

- Overview of Solvency II
- Pillar 1
- Pillar 2
- Pillar 3
- Quantitative Impact Studies (QIS)
- Industry concerns

Overview of Solvency II
Summary

- Unified prudential regulation of European (EEA) Insurers and Reinsurers
- Beyond quantitative measures and covers overall risk management
- Overhaul of European supervisory structure to encourage transparency and market discipline

- Increase policyholder protection and minimise regulatory burden
- Non-zero failure regime
- Three pillar structure, rooted in Basel II and CRD

Overview of Solvency II
History and timeline

- Replaces Solvency I which was factor based approach to capital based on technical provisions and sum at risk
- Similar principles to that underlying ICA:
  - Risk based approach
  - Balance sheet is stressed to assess capital requirements
  - Internal Model regulation is principles based
- In-force date is currently October 2012

Overview of Solvency II
Parties involved

European bodies

- European Commission
- CEIOPS/EIOPA

Stakeholders trying to influence across Europe

- CRO Forum, CFO Forum, CEA, AMICE, Groupe Consultatif

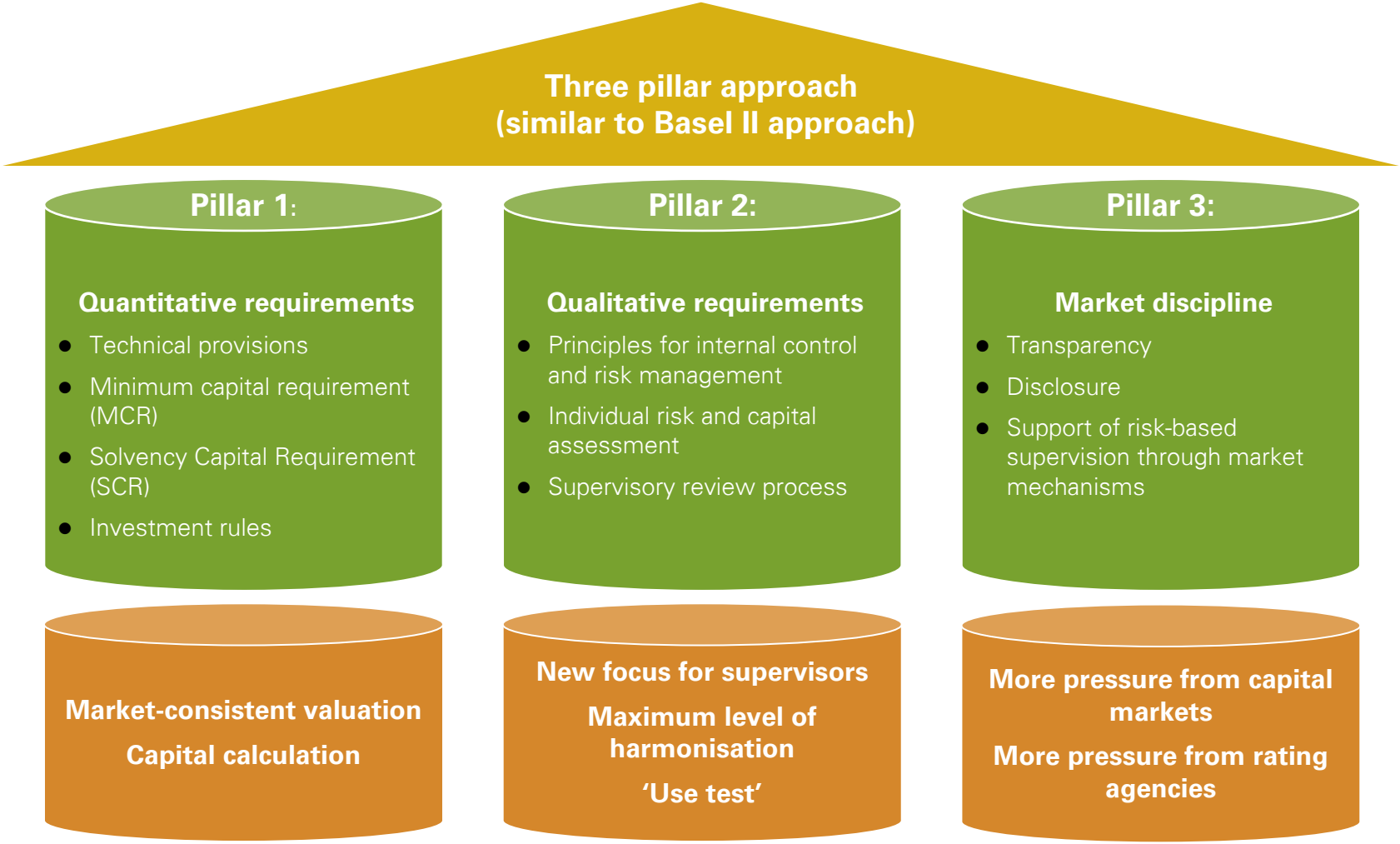
UK stakeholders include

- FSA, ABI, Insurers and Reinsurers

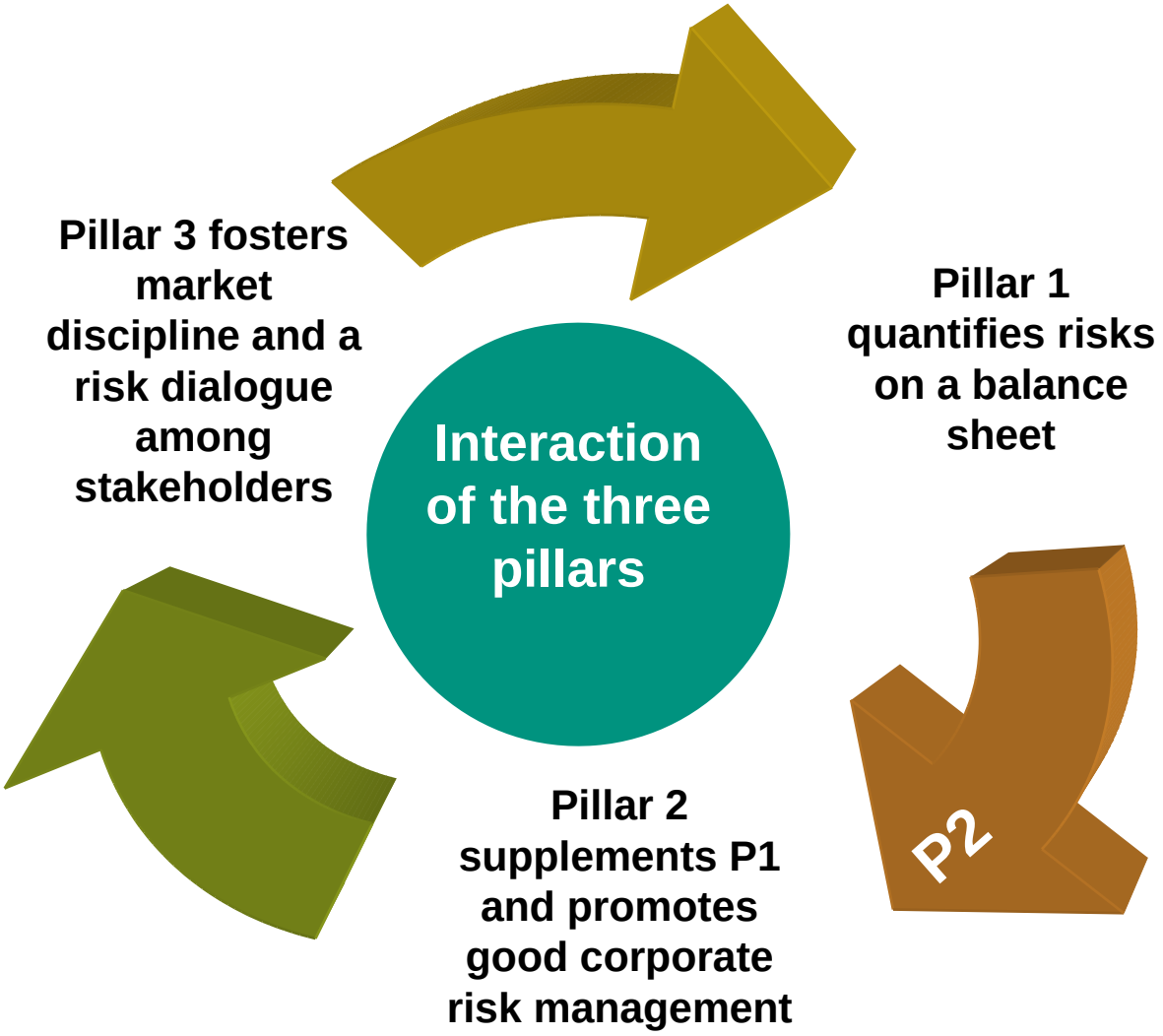
Overview of Solvency II
Four stages of development

Level	Overview	Current status
Level 1	Pass and adopt relevant legislation Contains 312 articles	Publication October 2009 Framework Directive adopted April 2009 Implementation 31 October 2012
Level 2	Decide on and approve technical details	CEIOPS on-going consultation Adoption expected October 2011 Quantitative Impact Study (QIS) 5: August to November 2010
Level 3	National regulators co-ordinate implementation and provides binding and non-binding guidance	CEIOPS on-going work Final advice December 2011
Level 4	Compliance with and enforcement of the new rules	

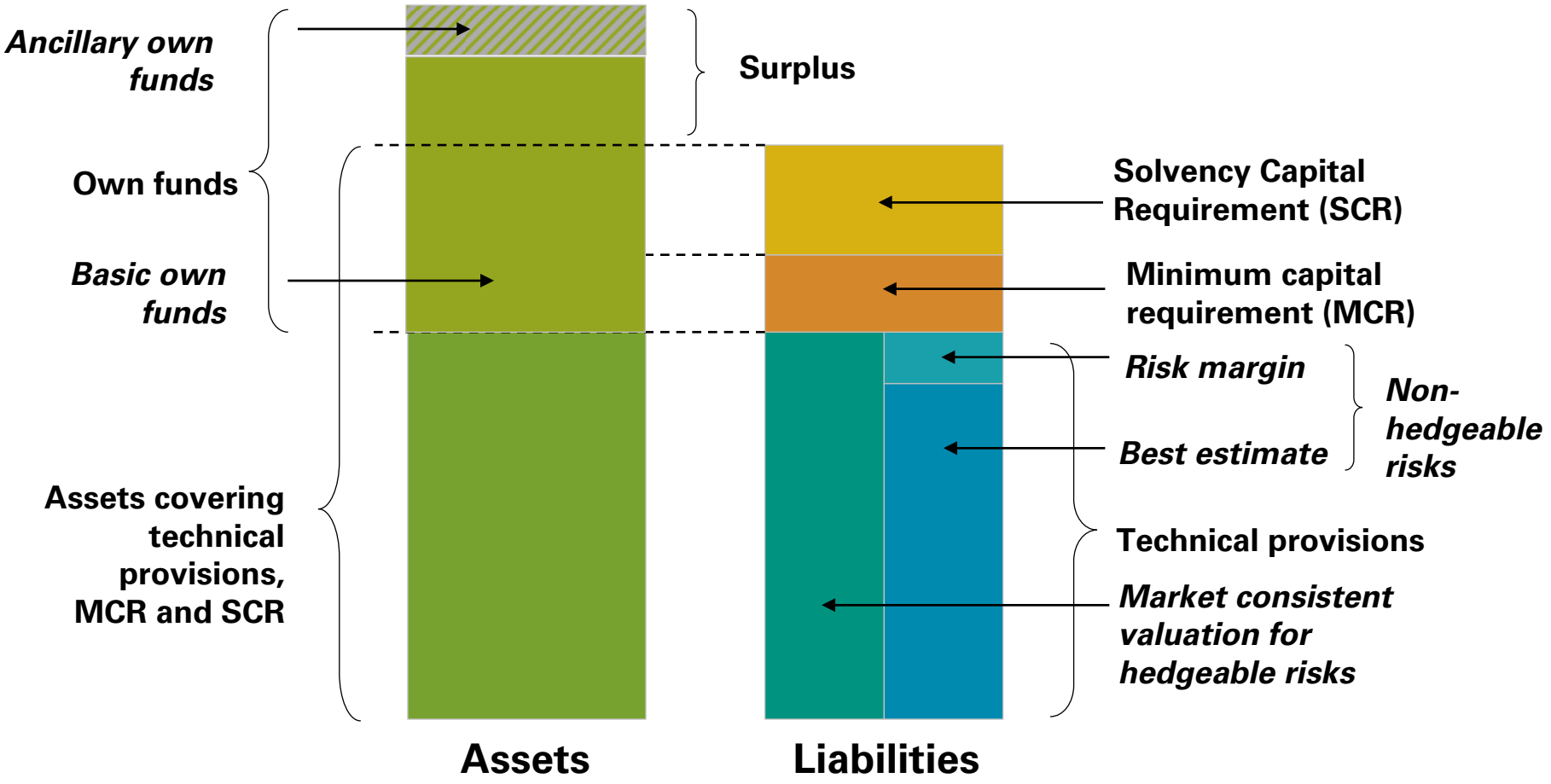
Three Pillar approach under Solvency II



Three Pillar approach under Solvency II



Pillar 1
Solvency II balance sheet



Pillar 1
Best Estimate Liabilities

Segmentation of BEL into 16 homogeneous risk groups

Key aspects:

- Cash flow projection
- Options and guarantees – intrinsic and time value
- Stochastic modelling preferred
- Market consistent calibration – including implied volatility
- Policyholder behaviour
- Management actions
- Participating business – discretionary bonus payments
- Simplifications – small insurers or portfolios, insignificant risks

Pillar 1
Risk Margin

"… the risk margin shall be calculated by determining the cost of providing an amount of eligible own funds equal to the Solvency Capital Requirement necessary to support the insurance and reinsurance obligations over the lifetime thereof. Project SCR for non-hedgeable risks …" **Article 77**

Hedgeable vs. non-hedgeable risks

"capable of being fully hedged in a sufficiently deep, liquid and transparent market"

"deep, liquid and transparent markets are defined as markets where participants can rapidly execute large-volume transactions with little impact on prices"

Examples of non-hedgeable risks

- 40 year interest rate exposure when the yield curve stretches for 30 years;

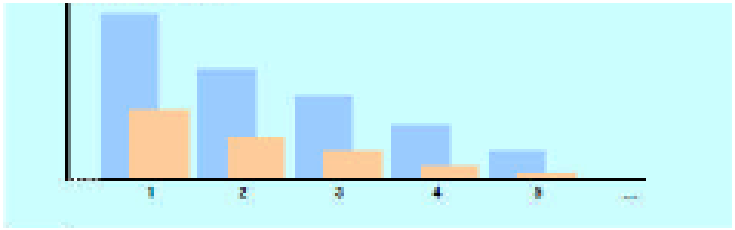
- mortality rate that can be reinsured as the quote is not publicly available and reflects the specific circumstances of the two parties to the transaction;

- operational risk

Pillar 1
Risk Margin

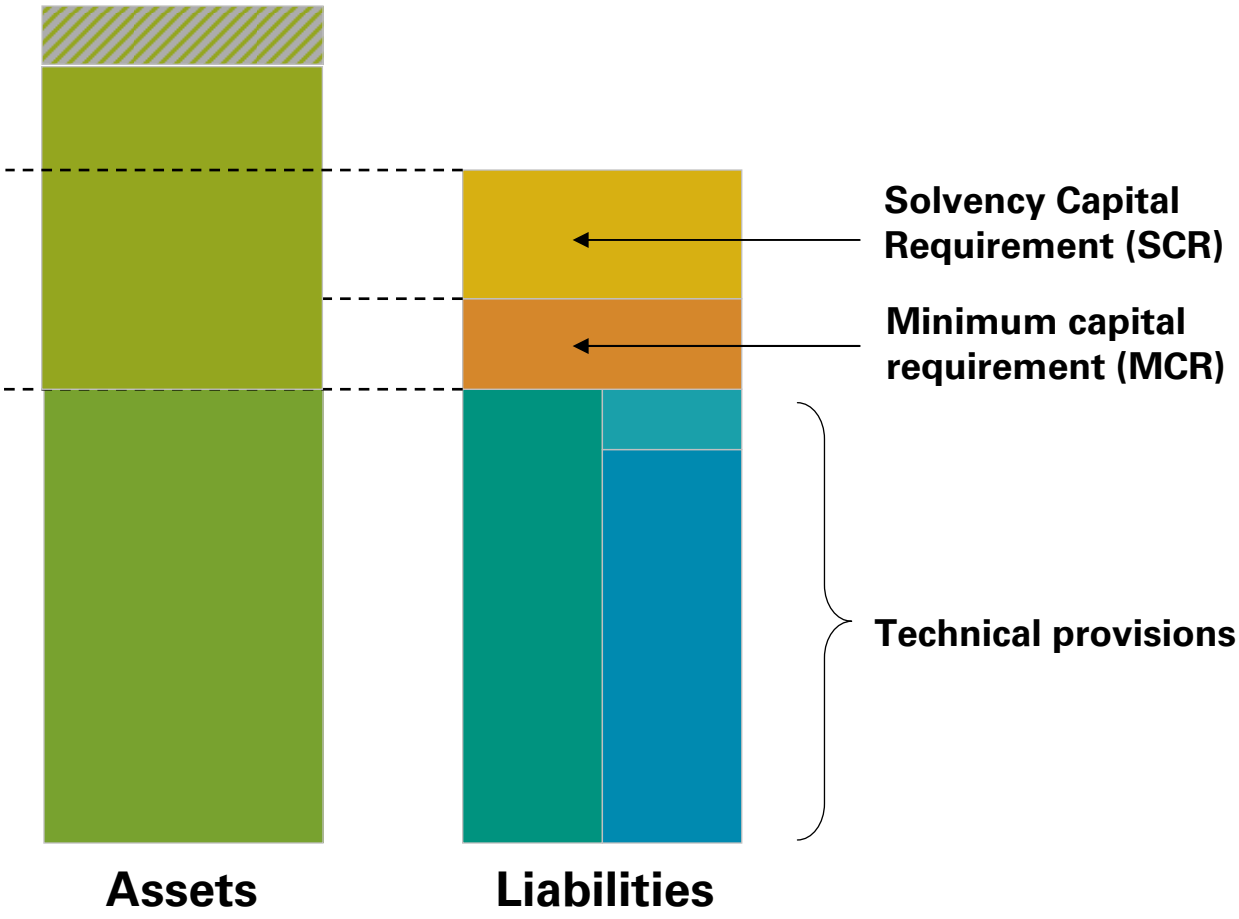
Risk margin is the cost of holding capital in respect of non hedgeable risks over lifetime of contract, charged at 6% pa, and discounted to balance sheet date

1. Project SCR for non-hedgeable risks
2. Charge for holding capital
   = Σ (CoC factor) x SCRt x vt
   CoC factor = 6% charge



Consistent with Swiss Solvency test

Pillar 1
Minimum capital requirement



- An absolute floor and level representing an unacceptable risk to policyholder triggering ultimate supervisor intervention
- Simple and robust calculation but not risk sensitive enough
- Ratio of MCR to SCR intended to be in range 25-45%
- Linear approach – Percentage of basic volume measures e.g. technical provision with limits

Pillar 1
SCR capital requirement

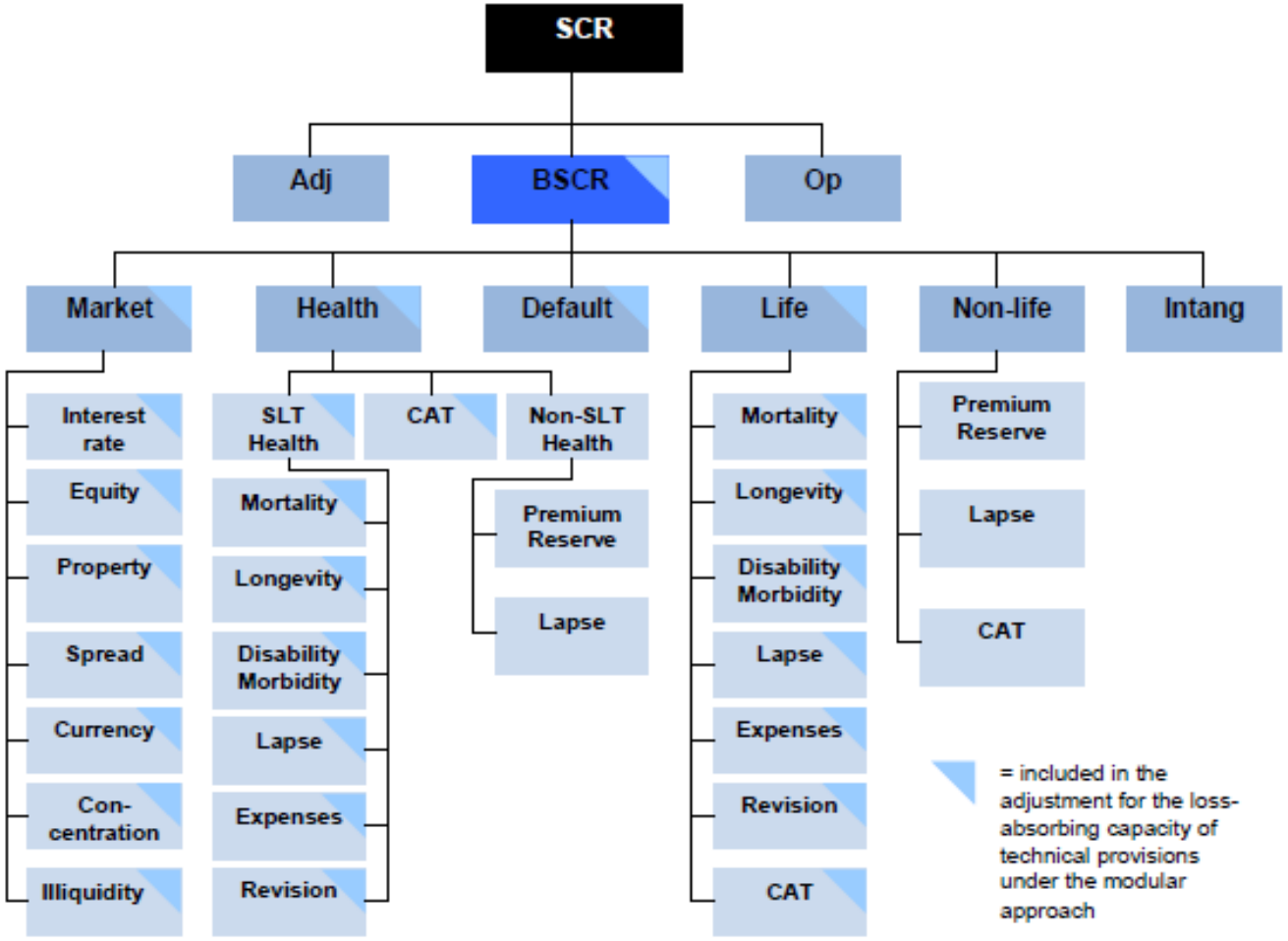
Article 101

…The Solvency Capital Requirement shall be calibrated so as to ensure that all quantifiable risks to which an insurance or reinsurance undertaking is exposed are taken into account. It shall cover existing business, as well as the new business expected to be written over the following 12 months. It shall correspond to the Value-at-Risk of the basic own funds of an insurance or reinsurance undertaking subject to a confidence level of 99,5 % over a one-year period….

SCR can be calculated using:

- Standard Formula
- Partial Internal Model
- Internal Model

Pillar 1
Standard Formula Modules (QIS5)



Pillar 1
Standard Formula - Life Module

Risk	QIS5
Mortality risk	15% increase in mortality rates
Longevity risk	20% decrease in mortality rates
Disability risk	35% increase in disability rates for next year: permanent 25% in subsequent years 20% decrease in recovery rates for all years (where applicable)
Lapse risk	More onerous of: (1) Reduction of 50% in the assumed rates of lapse in all future years for policies where the surrender strain is expected to be negative [subject to maximum reduction of 20% in absolute terms] (2) Increase by 50% in the assumed rates of lapse in all future years for policies where the surrender value is expected to be positive [subject to maximum of 100%] (3) Capital charge for the risk of a mass lapse event (30% of the sum of the surrender strain over all policies where the surrender strain is positive) For non retail business (i.e. pension fund management) 70% of the sum of the surrender strain is used as the capital charge for the risk of a mass lapse event)
Expense risk	Increase of 10% in future expenses and increase by 1% per annum of the expense inflation rate. *The treatment of policies with adjustable loadings has been removed.*
Catastrophe risk	Mortality: 1.5‰ increase in the rate of policyholders dying over the following year. *The morbidity catastrophe stress is removed.*

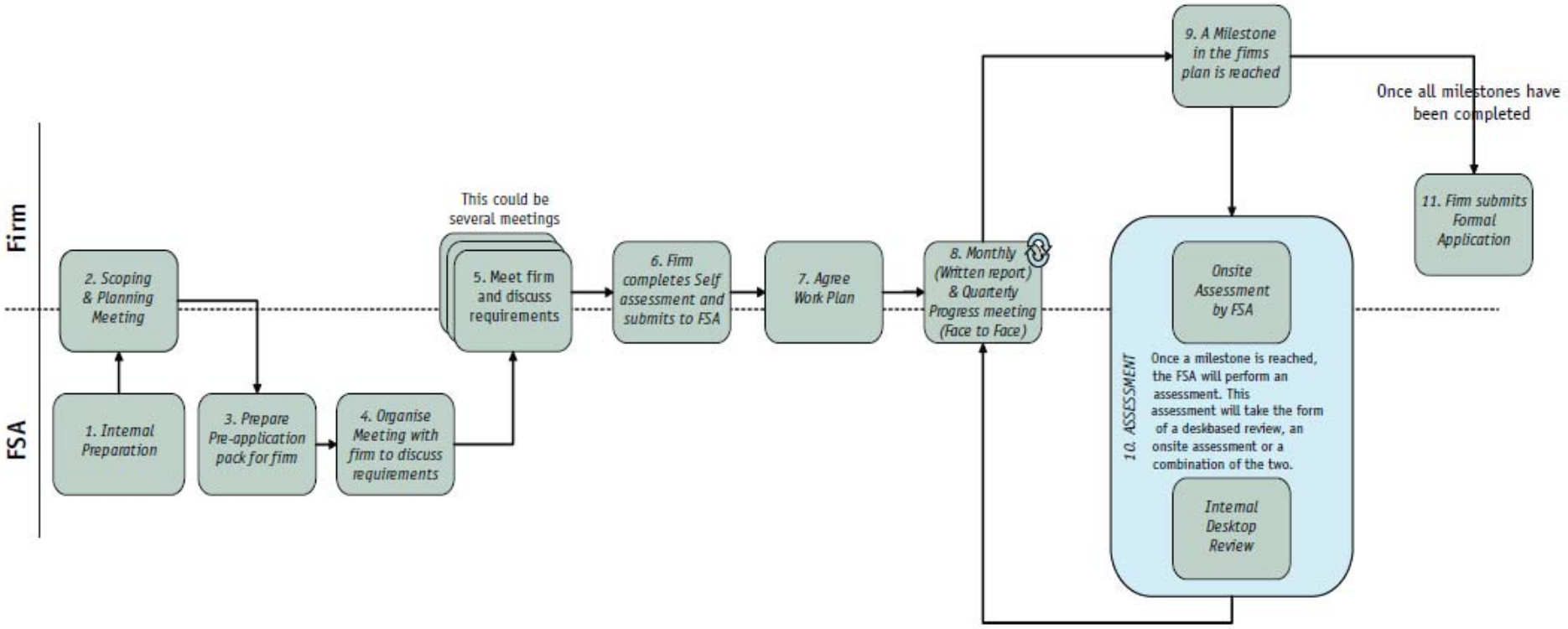
Pillar 1
Internal Model

No formal definition was given by the Solvency II Framework Directive…… but Industry bodies' attempts to define it as:

"A risk management system developed by an insurer to analyse the overall risk position, to quantify risks and to determine the economic capital required to meet those risks" – ***IAIS 2007***

"The overall internal model process is much wider than a capital calculation "engine" and reflects the importance of the methods by which parameters are developed and how the output is used in the company's decision making and risk management framework. A successful internal model will involve the integration of expertise across many disciplines" – ***Institute & Faculty of Actuaries 2009***

Pillar 1
Internal Model approval process



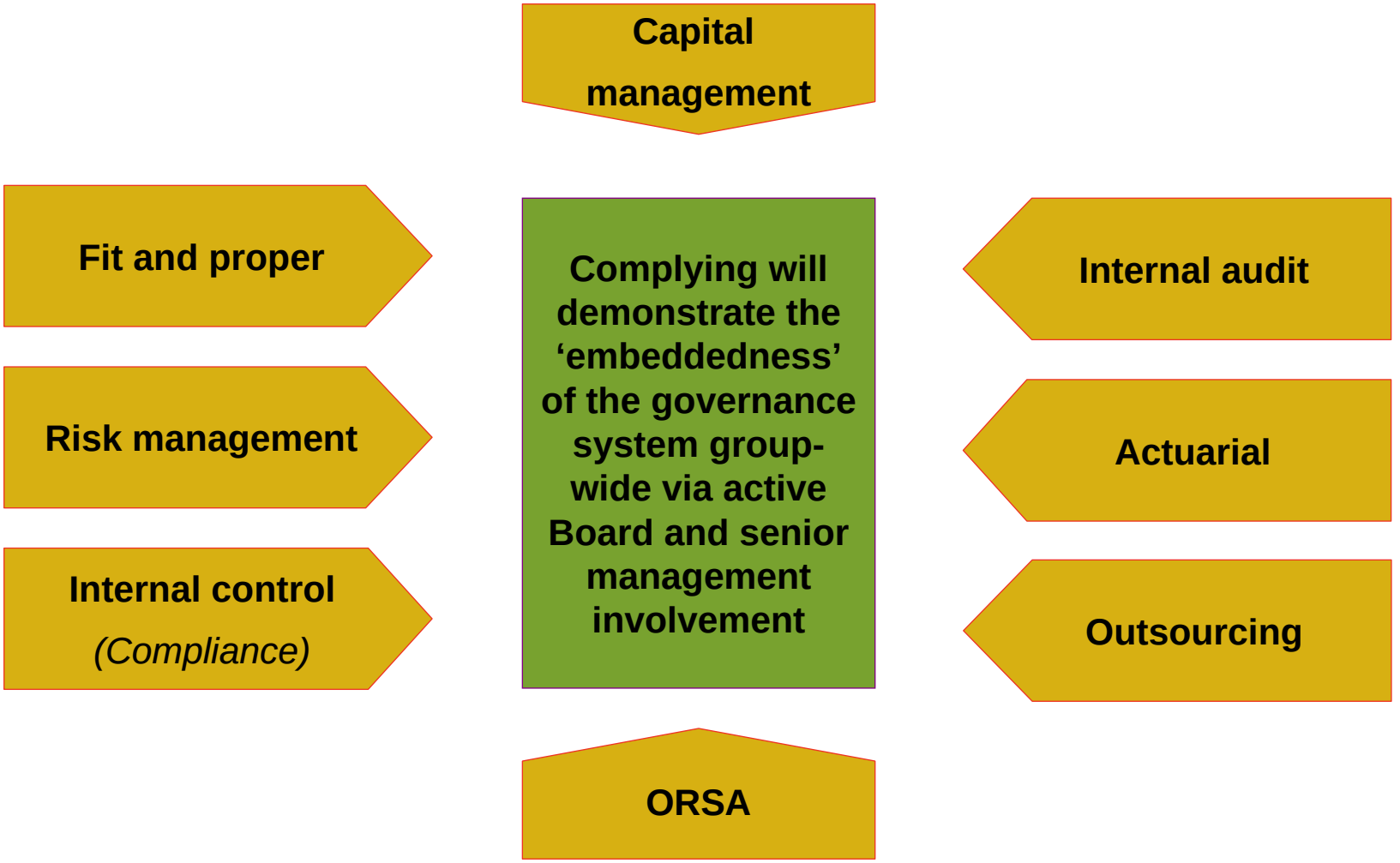
www.fsa.gov.uk/pubs/international/imap_update_april.pdf

Pillar 1
Tiering of Own Funds

Own funds are tiered based on capital quality

Level	Directive	CP46
SCR coverage	Min 1/3 Tier 1 Max 1/3 Tier 3	Min 50% Tier 1 Max 15% Tier 3
SCR limits between tiers	N/A	Tier 1> Tier 2 Tier 2> Tier 3
MCR coverage	Min 50% Tier 1	Min 80% Tier 1
Minimum maturity period	"Relative duration … considered"	Tier 1: 10 years* Tier 2: 5 years* Tier 3: 3 years * also liability duration

Pillar 2
Overview



Pillar 2
Governance

Some risks are better addressed by governance requirements and not just by setting quantitative requirements

Board has ultimate responsibility for compliance (Art 40)

Requirements of a system of governance (Art 41)

- Adequate and transparent ***organisational structure***
- Clearly articulated segregation of ***responsibilities***
- Effective system for ***reporting*** of information
- Should be ***proportionate*** to nature, scale and complexity of operations
- ***Written policies*** regarding all aspects of governance

Pillar 2
Governance – Role of risk management function

Responsible for detailed implementation of the internal model, defined in Article 44 of directive as:

- ***Design and implementation***
- ***Testing and validation***
- ***Documentation***
- ***Analysing and reporting on the performance***
- ***Liaise closely with users and suggest improvements***

Many of these roles are currently the responsibility of the actuarial function

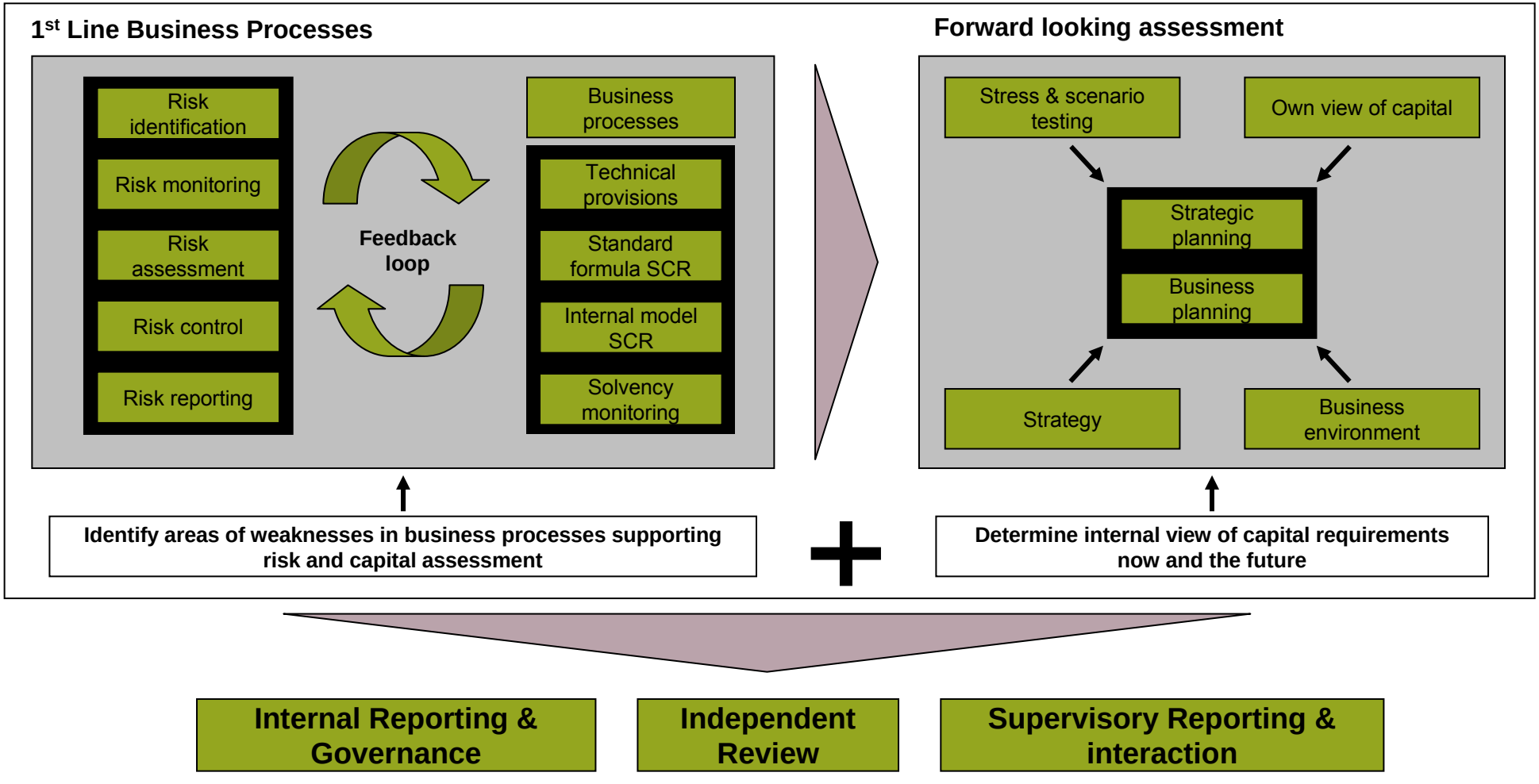
Pillar 2
ORSA

The Solvency 2 Directive Level 1 text requires all firms to perform an own risk and solvency assessment (ORSA) as part of its risk management system.

The ORSA is required to include the firm's view of at least:

- Its overall solvency taking into account its own risk profile
- Its compliance, on a continuous basis, with its MCR, SCR and technical provisions
- The significance with which the firm's risk profile deviates from the assumptions underlying their SCR
- The risks it faces in both the short and long term

ORSA components

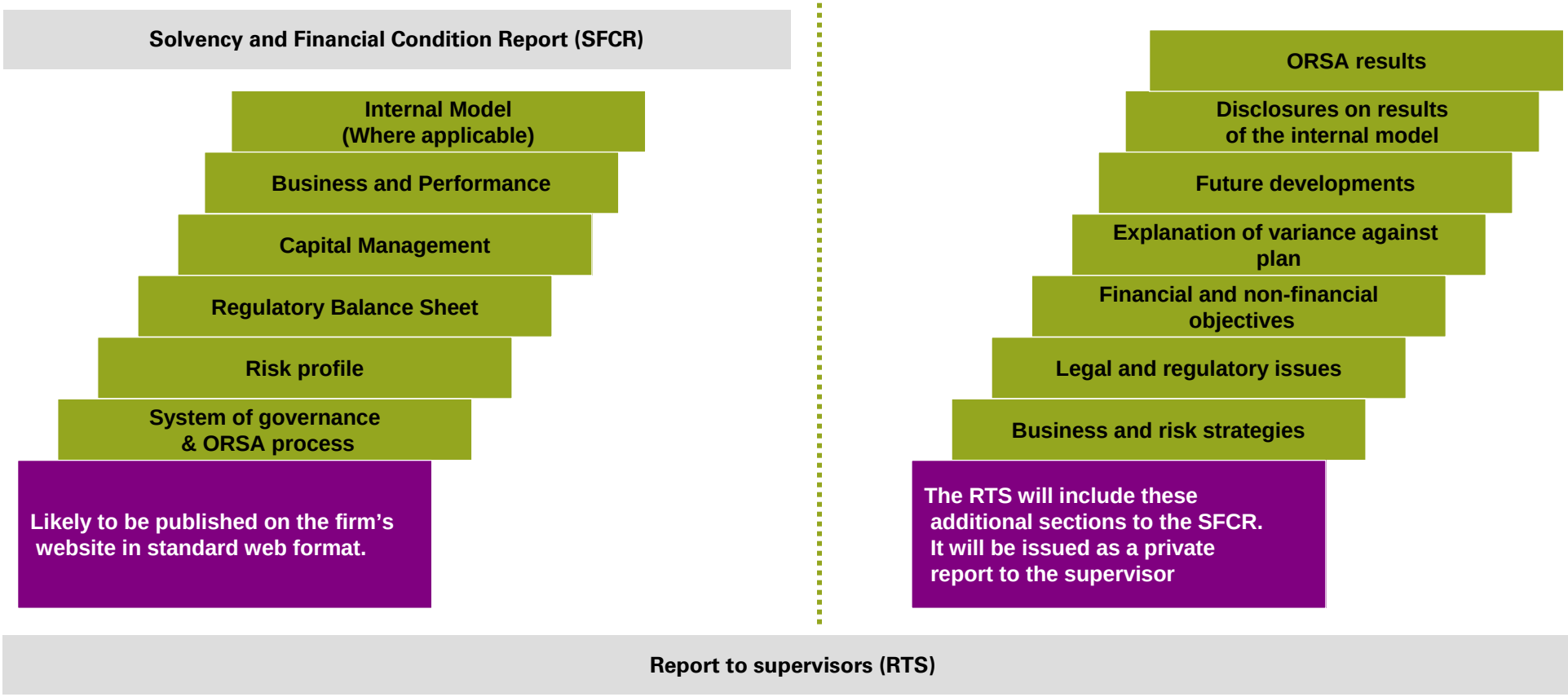


Pillar 3
Overview of the reporting framework

Private reporting to supervisors	Public disclosure
Return to Supervisors (RTS) ● Full RTS or material change RTS ● Full at least every five years ● Submit 3-4 months after the year end ● ORSA will form part of the RTS **Quantitative reporting forms (QRT)** ● Annual – 14 weeks after the year end ● Quarterly to support MCR calculation – 4 weeks after the quarter end	**Solvency and Financial Condition Report (SFCR)** ● ORSA will form part of the SFCR ● Submit annually, 3-4 months after the year end **Extracts from Quantitative reporting forms (QRT)** ● Timetable as per the RTS

Pillar 3
Prescribed structure for reporting

The SFCR and RTS will contain a number of pre-defined sections. The SFCR is in effect a subset of the RTS which includes some additional sections



Documentation Requirements
Overview

The Internal Model will need to be underpinned by robust documentation, it is expected to include:

- Demonstrate compliance with the 6 other Internal Model tests
- A firm will have a clear documentation policy
- Sets out the theory, assumptions, and mathematical and empirical basis “such that an independent, knowledgeable third party could understand the reasoning and the underlying design and operational details of the internal model”.
- “Rationale for the decision to adopt certain practices”
- All major changes
- Documentation will take into account its target audience

Quantitative Impact Studies (QIS)
Overview

CEIOPS has run a series of ‘Quantitative Impact Studies’ (QIS)

QIS1 focused on technical provisions

QIS2 provided the first test of the capital assessment proposals for the ‘standard approach’; -

QIS3 updated a number of elements of the calibration and tested group proposals for the first time.

QIS4 took place in 2008 and focussed on calibration of standard formula

QIS5 currently taking place and results expected Spring 2011

QIS5
Key issues emerging

- Contract boundaries
- Expected profits in future premiums
- Staff Pension Scheme (inc. or exc. from SF)
- Liquidity premium
  - ESG calibrations
- Risk margin
  - Unavoidable market risk
- SES
- LACOTP
  - Guaranteed versus discretionary benefits
  - Value of future discretionary benefits
- Tax position/basis/modelling of deferred tax assets
- LACODT
- Segmentation
- WP business / Mutuals
- Reinsurance assets
- Mass lapse stress test
- New business allowance
- Resourcing and runs required
- Delays in issue of templates and multiple updates
- Lack of clarity and inconsistency in the technical specification/Q&A
- Ring-fencing
- Equity concentration risk – lack of credit ratings in asset data feeds
- Interest rate stresses – minimum floor of 0% for Fixed and Real
- Group calculations

Industry Concerns
Overview

Cost of implementing is high and resources are stretched

Timescales are tight to achieve all that is required

Consistency of implementation across Europe

Treatment of non-European entities (Equivalence)

Lack of guidance in some key areas (e.g. ORSA)

Liquidity Premium

Onerous documentation requirements

Questions or comments?

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter.